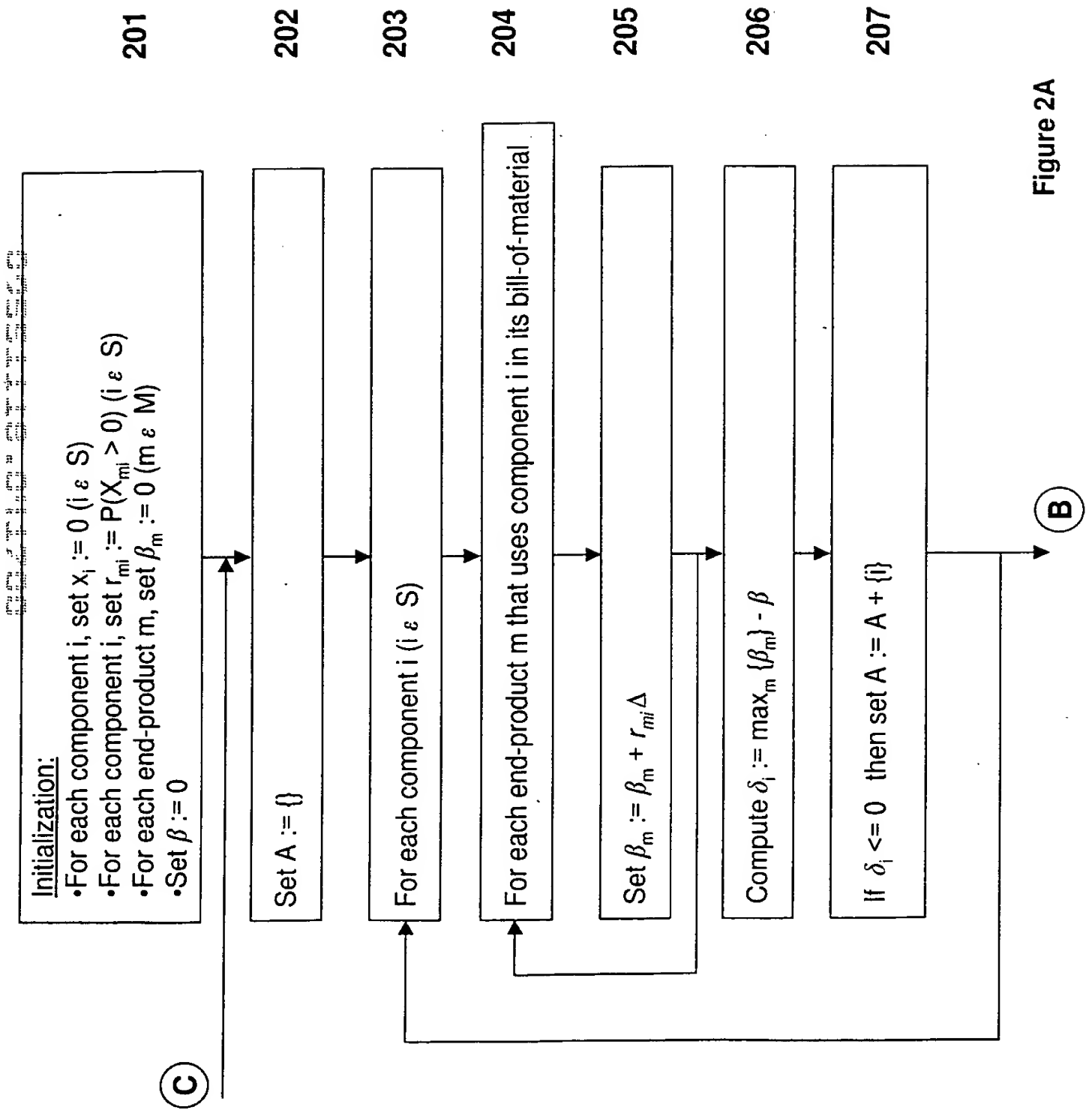


Figure 1



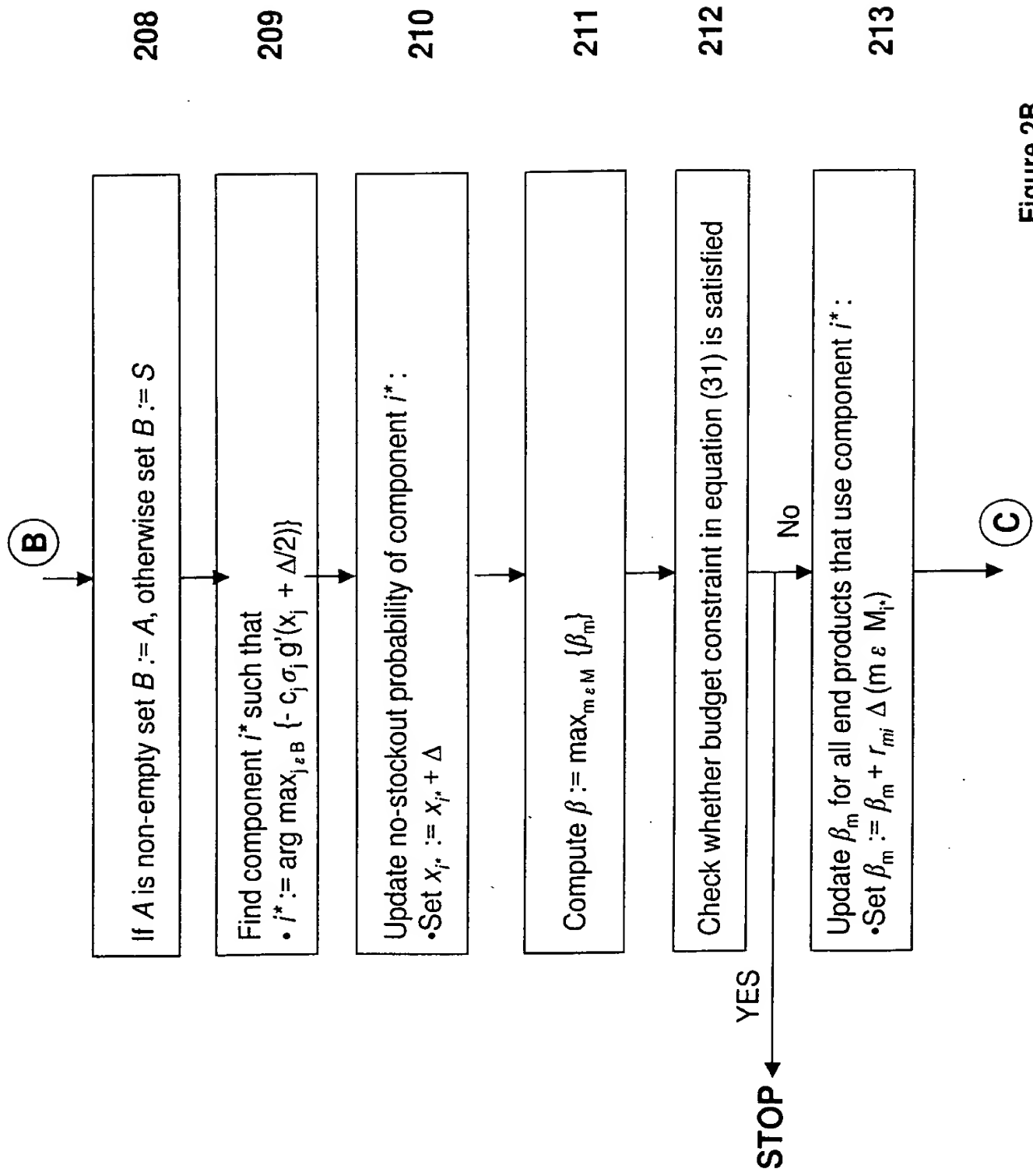


Figure 2B

Input Device / Database:

Optimization control parameters

- B : budget limit on expected overall inventory cost
- Δ : step size for greedy algorithm

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Input Device / Database:

Manufacturing system parameters

- $D_m(t)$: demand for end product m in period t
($m \in M$ and $t=1, \dots, T$)
- L_i^{in} : inbound lead time distribution for component i
($i \in S$)
- L_m^{out} : outbound lead time distribution for end product
($m \in M$)
- X_{mi} : distribution of number of units of component i
used in the assembly of end product m ($i \in S, m \in M$)
- c_i : unit cost of component i ($i \in S$)
- bill-of-materials for end product m ($m \in M$)

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Processor:

- 1) Preprocessing
 - Propagate demand: compute mean and variance of $D_i(t)$ ($m \in M$ and $t=1, \dots, T$), using eqs. (5,6)
 - compute mean μ_i and variance σ_i^2 of demand over the lead time ($i \in S$), using eq. (16)
- 2) Optimization
 - Apply variable transformation, using eq. (28)
 - Reformulate optimization problem defined in eqs. (29)-(31)
 - Solve optimization problem (29)-(31) through greedy algorithm detailed in Figures 2A, 2B
- 3) Postprocessing
 - compute reorder points R_i ($i \in S$) using eqs. (5,6,17,28)
 - translate reorder points R_i into days-of-supply DOS_i ($i \in S$), see eq. (18)

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Figure 3A

A
↓

Output Device / Database:

- output days-of-supply DOS_i , for each component i ($i \in S$)
- output achieved service level for each end-product m ($m \in M$)

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Figure 3B

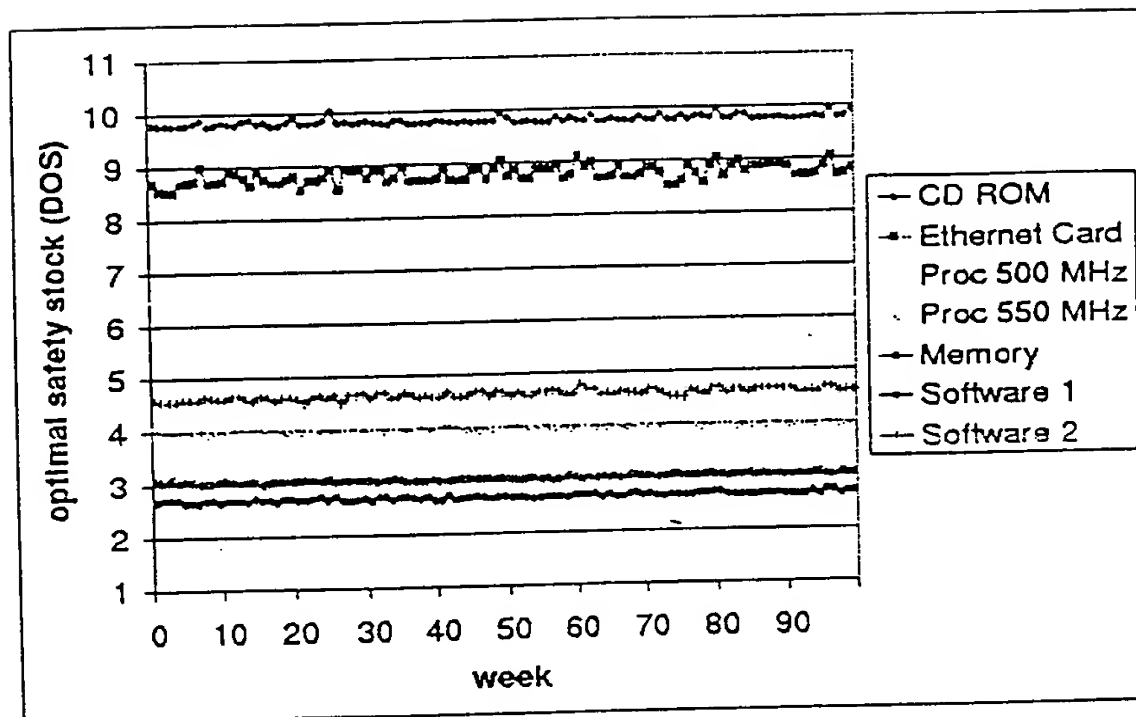


FIG. 4

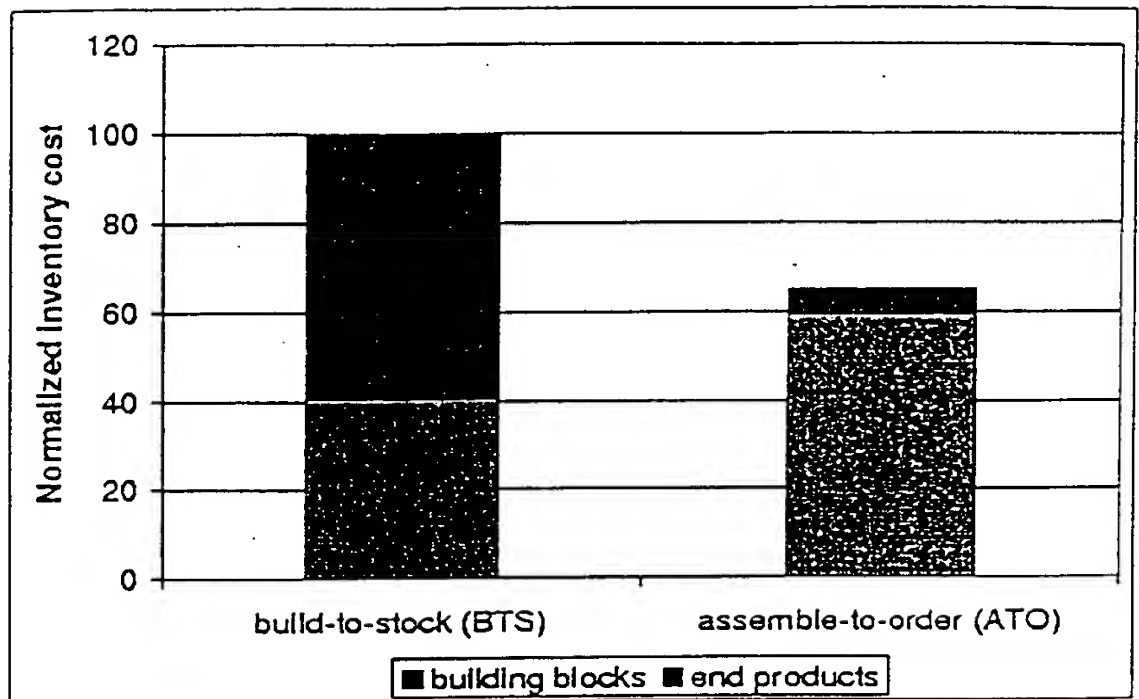


FIG. 5

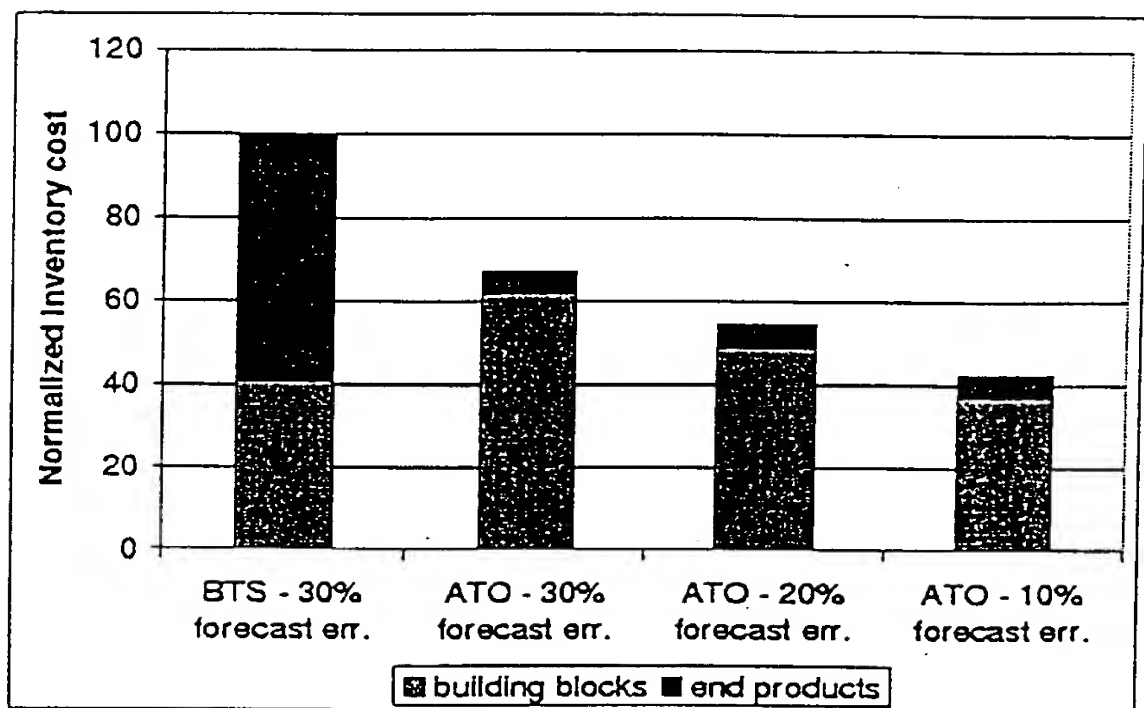


FIG. 6

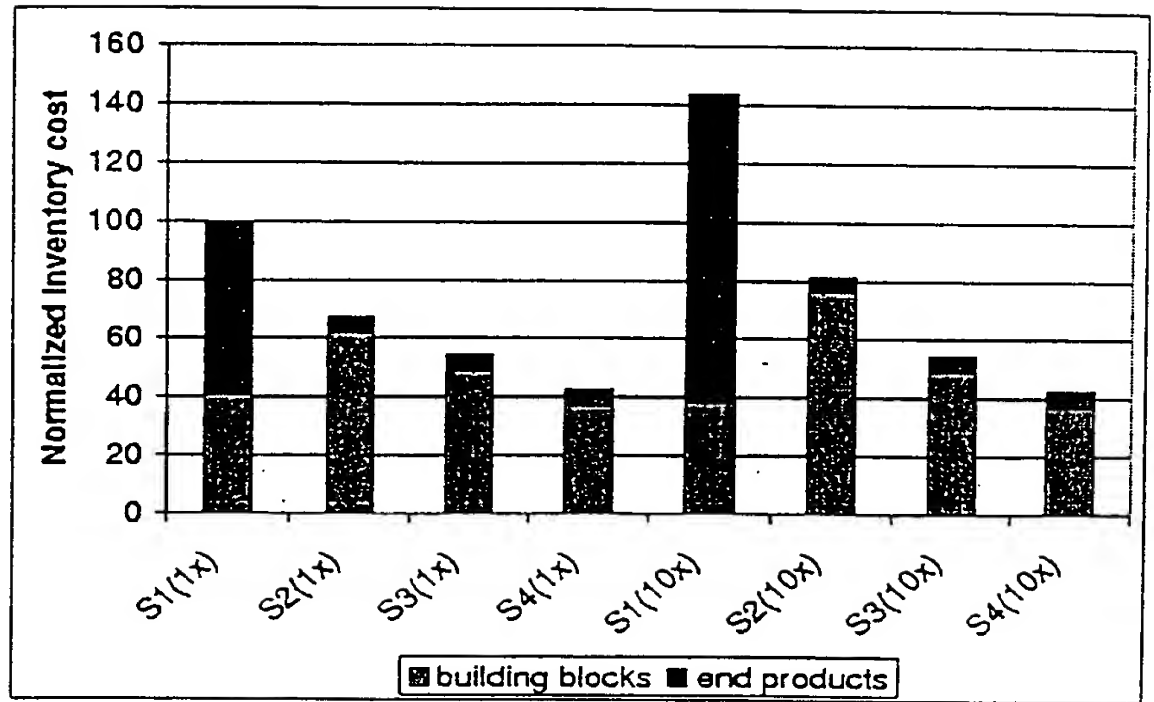


FIG. 7